भारतीय मानक
Indian Standard

IS 3176 : 2023

वस्त्रादि — रिंग और स्पीड फ्रेमों के लिए टॉप रोलर्स — विशिष्टि

(तीसरा पुनरीक्षण)

Textiles — Top Rollers for Ring and Speed Frames — Specification

(Third Revision)

ICS 59.120.10

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June 2023 **Price Group 4**

Textile Machinery and Accessories Sectional Committee, TXD 14

FOREWORD

This Indian Standard (Third Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Textile Machinery and Accessories Sectional Committee had been approved by the Textiles Division Council.

Top rollers are held strictly parallel to and in perfect alignment with bottom rollers. Double-boss top rollers are used in the roving and ring frames which are supported in their centre sections by the weighting arm. Top rollers can swing slightly relative to the axis of the bottom rollers.

Coverings on the top rollers are made of synthetic rubber. The covering is drawn on to the boss in the form of a short tube under tension, and is glued in place. This operation should be carried out with the utmost care.

This standard was originally published in 1965 and subsequently revised in 1971 and 1983. This revision has been made in the light of experience gained since its publication and to incorporate the following major changes:

a) Title of the standard has been modified;
b) All amendments have been incorporated;
c) Marking and packing have been modified;
d) Sampling clause has been incorporated; and
e) References to Indian standards have been updated.

The composition of the committee responsible for the formulation of this standard is listed in Annex A.

For the purpose of deciding whether a particular requirement of this standard is complied with the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 ‘Rules for rounding off numerical values (*second revision*)’. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

TEXTILES — TOP ROLLERS FOR RING AND SPEED FRAMES — SPECIFICATION

(Third Revision)

1 SCOPE

1.1 This standard specifies requirements for antifriction bearing top rollers for use in ring spinning and speed frames.

1.2 This standard does not lay down requirements for bearings used in conjunction with the top rollers and cots used as covering.

2 REFERENCES

The standards listed below contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards listed below.

IS No./Other publications	*Title*
IS/ISO 94 : 1982	Textile machinery and accessories — Spindle gauges for ring-spinning and ring-doubling frames
IS 2500 (Part 1) : 2000	Sampling procedures for inspection by attributes: Part 1 Sampling schemes indexed by acceptance quality limit (AQL) for lot by lot inspection (*third revision*)
IS 4398 : 1994	Carbon — Chromium steel for the manufacture of balls, rollers and bearing races — Specification (*second revision*)

3 TYPES

3.1 The top rollers shall be any of the following two types:

a) Type 1 — Fixed boss type (*see* Fig. 1); and
b) Type 2 — Loose boss type with non-removable (non-detachable) shell (*see* Fig. 2).

3.2 For the purpose of this standard, the nomenclature of the components of the rollers shall be as indicated in Fig. 1 or Fig. 2.

4 MANUFACTURE

4.1 Material

The arbors and shells with raceways shall be manufactured from high carbon-chromium steel conforming to Designation 103Cr6 of IS 4398.

4.2 Roller Gauge

The roller gauge (standard centre to centre distance of the two bosses of top roller) should suit the spindle gauge (*see* IS/ISO 94).

4.3 Load-Bearing Capacity

The load-bearing capacity of the top rollers shall be in line with the drafting system.

4.4 Finish

The outer surface of the shells of the rollers shall be suitably prepared to facilitate their covering with synthetic cots.

NOTE — Grooves, if provided, shall have depth as agreed to between the buyer and the seller.

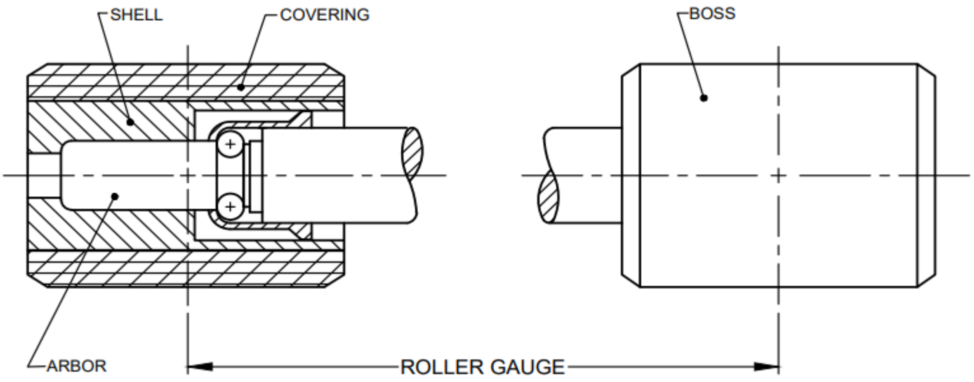

FIG. 1 A TYPICAL FIXED BOSS TYPE ROLLER

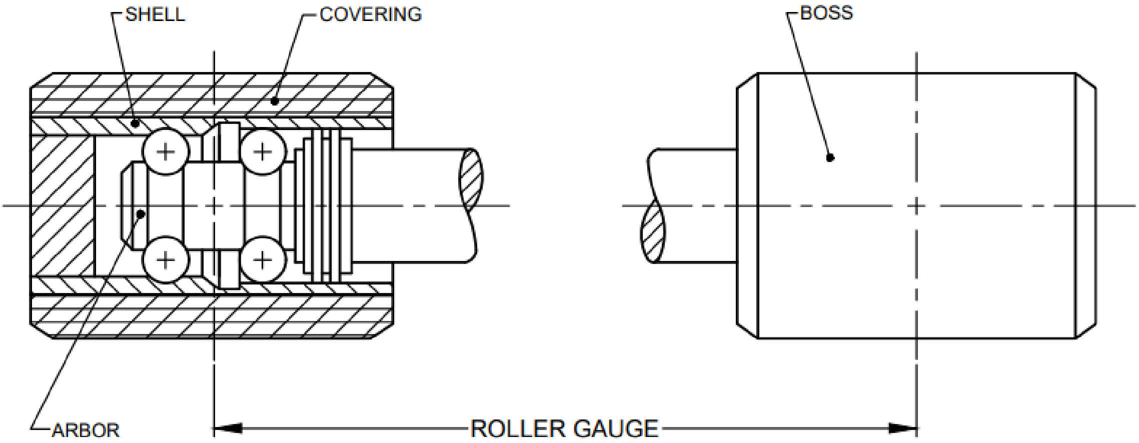

FIG. 2 A TYPICAL LOOSE BOSS TYPE ROLLER WITH NON-REMOVABLE (NON-DETACHABLE) SHELL

4.5 Freedom from Defects

The top rollers shall be free from any trace of dirt, scale and rust and manufacturing defects.

5 REQUIREMENTS

5.1 Diameter

Both the shells of the top rollers shall have the same diameter as agreed to between the buyer and the seller. However, tolerance of $^{+0.00}_{-0.05}$ mm on the agreed diameter shall be permissible.

5.1.1 The diameter of the shells shall be measured with suitable callipers measuring to an accuracy of 0.01 mm.

5.2 Run-out (Total Indicator Reading)

The run-out of the top rollers with covering shall be not more than 0.06 mm (TIR) and without covering (only for apron top roller) not more than 0.05 mm (TIR).

5.2.1 The run-out of the top rollers shall be measured with suitable dial indicators, by clamping the arbor fast on an inclined surface (*see* Fig. 3). The contact point of the dial indicator shall be with steel/carbide/ruby ball, to avoid penetration into the covering.

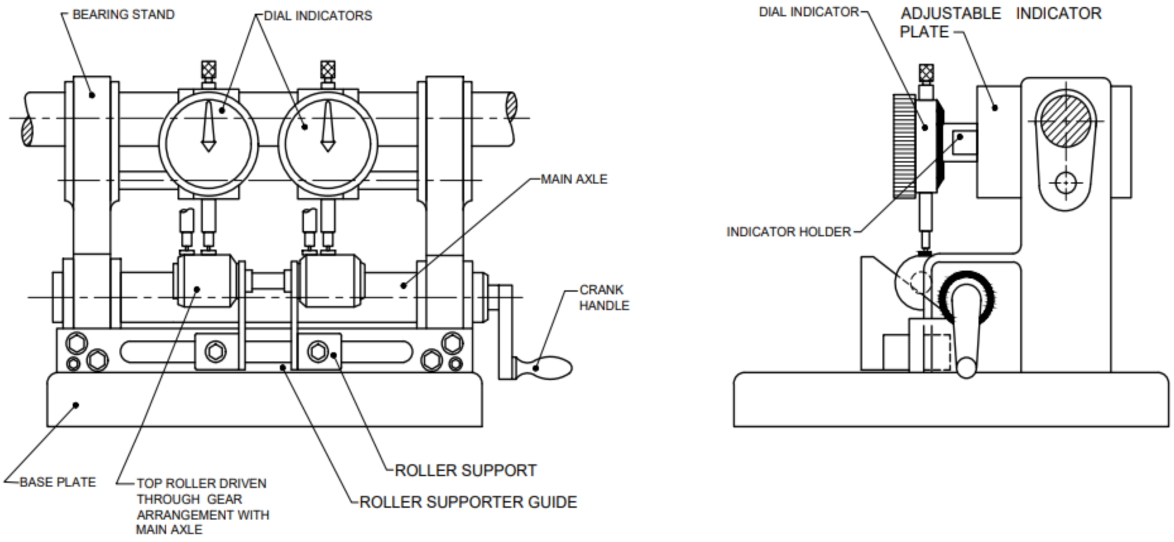

FIG. 3 A TYPICAL ARRANGEMENT FOR MEASURING RUN-OUT OF TOP ROLLER

6 DESIGNATION

The top rollers shall be designated as under:

Roller gauge in mm × bare roller diameter in mm × length of the shell in mm

Example:

65 mm × 19 mm × 33 mm top rollers

7 MARKING

7.1 Each container of the top rollers shall be marked with the following:

a) Manufacturer's name, initials or trade-mark, if any;
b) Designation of the top rollers;
c) Number of top rollers in the container;
d) Gross and net mass;
e) Lot/batch number;
f) Country of origin; and
g) Any other information required by the law in force and/or by the buyer.

NOTE — To facilitate distinction of top rollers manufactured by different manufacturers, every manufacturer should ensure that the top rollers manufactured by him are distinguishable.

7.2 BIS Certification Marking

The top rollers conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act*, 2016 and the Rules and Regulations framed thereunder, and the products may be marked with the Standard Mark.

8 PACKING

8.1 The top rollers shall be suitably greased and given a thin coat of rust-preventive oil all over taking care that the oil does not penetrate the bearing. The top rollers with cots shall be greased only at the sides.

8.2 The top rollers shall thereafter be wrapped in wax-coated paper or put in polyethylene bags. An appropriate number of the rollers shall then be packed in a suitable container.

9 SAMPLING

9.1 Lot

In any consignment, the number of top rollers delivered to a buyer against a dispatch note, shall constitute a lot.

9.2 Unless otherwise agreed to between the buyer and the seller, the number of top rollers to be selected for inspection, shall be according to co1 (2) and col (3) of Table 1 [*see also* IS 2500 (Part 1)].

9.3 Criteria for Conformity

The lot shall be considered conforming to the requirements if the following conditions are satisfied:

Characteristic	*Number of Samples*	*Criteria for Conformity*
Diameter and freedom from defects	According to co1 (3) of Table 1	Number of defective top rollers shall not exceed the corresponding number given in col (4) of Table 1
Material and all other requirements	According to co1 (5) of Table 1	All top rollers meet the relevant requirements

Table 1 Sample Size and Permissible Number of Defectives
(*Clauses* 9.2 and 9.3)

Sl No. (1)	Lot Size (2)	Sample Size (3)	Permissible Number of Defectives (4)	Sub-Sample Size (5)
i)	Up to 150	8	1	3
ii)	151 - 280	13	1	3
iii)	281 - 500	20	2	3
iv)	501 and above	32	3	5

ANNEX A

(*Foreword*)

COMMITTEE COMPOSITION

Textile Machinery and Accessories Sectional Committee, TXD 14

Organization	*Representative(s)*
Central Manufacturing Technology Institute, Bengaluru	Dr Nagahanumaian **(*Chairperson*)**
ATE Enterprises Private Limited, New Delhi	Shri Abhijit Kulkarni Shri Anil Kumar Sharma (*Alternate*)
Amritlakshmi Machine Works, Mumbai	Shri N. K. Brahmachari Shri N. K. Raut (*Alternate*)
Bhowmick Calculator, Kolkata	Shri Goutam Bhowmick Shri Vivekananda Bhowmick (*Alternate*)
Central Manufacturing Technology Institute, Bengaluru	Shri B. R. Mohanraj Shri K. Saravanan (*Alternate*)
Confederation of Indian Textile Industry, New Delhi	Shri Ajay Kumar
Dashmesh Jacquard and Powerloom Private Limited, Panipat	Shri Rajmeet Dhammu (*Representative*)
HLL Lifecare Limited, Noida	Shri Akhil G. S. Shri Ratnakar Gupta (*Alternate*)
ICAR-Central Institute for Research on Cotton Technology, Mumbai	Dr V. G. Arude Dr T. Senthilkumar (*Alternate*)
India ITME Society, Mumbai	Shri Prashant Mangukia Shrimati Seema Srivastava (*Alternate*)
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Indian Textile Accessories and Machinery Manufacturers Association, Mumbai	Shri N. D. Mhatre Shri Chandresh Shah (*Alternate*)
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Kusters Calico Machinery Limited, Karjan	Shri Devang Parikh Shri Shubhasis Sur (*Alternate*)
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Man Made Textiles Research Institute, Surat	Dr S. K. Basu
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National Safety Council, Navi Mumbai	Shri Lalit R. Gabhane Shri R. R. Deoghare (*Alternate*)
Office of the Textile Commissioner, Mumbai	Shri C. R. Kalesan Shri Jagram Meena (*Alternate*)

Organization	*Representative(s)*
Peass Industrial Engineers Private Limited, Navsari	Shri Ravi S. Rao Shri Jignesh B. Patel (*Alternate*)
Technocraft Industries India Limited, Mumbai	Shri Ravinder Kumar Shri Duradundeshwar Hiremath (*Alternate*)
Textile Machinery Manufacturers Association, Mumbai	Shri M. Shankar Shri Prashant Mangukia (*Alternate*)
The Bombay Textile Research Association, Mumbai	Shri Vijay Gawde Shri R. A. Shaikh (*Alternate*)
The Synthetic and Art Silk Mills Research Association, Mumbai	Dr Manisha Mathur Shri Sanjaya Saini (*Alternate*)
The Textile Association (India), Mumbai	Shri J. B. Soma Shri Ashok Juneja (*Alternate*)
Truetzschler India Private Limited, Ahmedabad	Shri Pravin Kandge Shri Shiladitya Joshi (*Alternate*)
United Nations International Children's Emergency Fund, New Delhi	Dr Pratibha Singh Shri Yusuf Kabir (*Alternate*)
Veermata Jijabai Technological Institute, Mumbai	Dr Suranjana Gangopadhyay Shri S. P. Borkar (*Alternate*)
BIS Directorate General	Shri J. K. Gupta, Scientist ‘E’/Director and Head (Textiles) [Representing Director General (*Ex-officio*)]

Member Secretary
Shri Swapnil
Scientist ‘B’/Assistant Director
(Textiles), BIS

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Amend No.	Date of Issue	Text Affected

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